

*2000 Report Of The
Diabetes Survey Of Healthcare Providers*

*South Dakota Department Of Health
January 2001*

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*Introduction
and
Methodology*

Introduction

In 1999, diabetes was the seventh leading cause of death in South Dakota, accounting for 195 deaths or 2.8 percent of all deaths.

Diabetes is a severe chronic disease with devastating complications. Complications can include lower extremity amputations, blindness, kidney failure, problems during pregnancy and delivery, and persons with diabetes are at a higher risk of heart attack, stroke, and premature death. The burden of diabetes is alarming, but the good news is that much of the burden of this major public health problem can be prevented with early detection, improved delivery of care, and diabetes self-management education.

Methodology

Survey Purpose

In February 1999 the South Dakota Department of Health Diabetes Control Program in cooperation with the South Dakota Diabetes Advisory Council released the Basic Practice Guidelines for Diabetes Mellitus. Two years later the Department of Health conducted a survey of healthcare providers to assess the practices of healthcare providers as they relate to diabetes and to measure the effectiveness of those guidelines.

Method of Surveillance

A 28-question paper survey was developed that asked multiple choice questions regarding how frequently the healthcare provider recommended various forms of healthcare and where they obtained useful sources of information about diabetes.

Data Collection Process

The first mailing of this survey was mailed to approximately 1,200 healthcare providers in June 2000. The healthcare providers who did not respond to the first mailing received a second copy of the survey in July 2000. After allowing for duplicate surveys returned or retired physicians to be excluded from the survey pool, approximately 417 surveys were used in this analysis, for a return rate of 37.6 percent.

Eligible Respondent Selection

Eligible respondents for the survey were family practice physicians, physician assistants, general practitioners, nurse practitioners and pediatricians.

Data Processing

Data were encoding into a Microsoft Access database. The statistical computer package SPSS was used for frequency analysis and crosstabulations.

Report Description

Frequencies for each question are provided in the report and where applicable are compared to the Basic Practice Guidelines For Diabetes Mellitus. Crosstabulations include; the size of town in which the provider's practice is located by survey question responses, the provider's type of principal practice arrangement by survey question responses, and if the provider read the Basic Practice Guidelines or viewed the training tapes by whether the guidelines were followed. Results of the analysis were summarized and are provided in written and graph format. This survey also provides a basis for comparing results from a similar survey sent to diabetic patients in January 1998.

Summary

Summary

- The Basic Practice Guidelines suggest that healthcare providers recommend their patients with diabetes schedule and complete four or more routine or follow-up visits a year. Of the healthcare providers answering the survey, 63.3% recommend 4 or more visits to a doctor a year and 31.7% recommend 2 to 3 visits a year.
- According to the Basic Practice Guidelines, the feet and legs of persons with diabetes are to be examined at each medical visit. Of the healthcare providers answering the survey, 35.3% recommend foot examinations 4 or more times a year.
- Most or 95.4 percent of the healthcare providers answering the survey recommend their patients with diabetes schedule annual eye exams.
- The Basic Practice Guidelines suggest that healthcare providers recommend their patients with diabetes see a dentist twice a year for routine dental care. The majority, or 63.8% of the survey respondents recommend dental exams one time a year, while 20.9% recommend two dental visits a year.
- Close to three-fourths, or 71.2%, of the healthcare providers feel that 70-110 is an acceptable fasting blood glucose level while 22.1% thought that 111-140 mg/dl is acceptable.
- Most, or 88%, of the healthcare providers reported they consider the highest acceptable blood pressure as level that does not require intervention as ≤ 130 systolic and ≤ 85 diastolic.
- The survey responses indicate that 30.9% of respondents order glycosolated hemoglobin, hemoglobin A1c or HbA1c tests 4 or more times a year while 54.4% order the tests 2-3 times per year.
- The Basic Practice Guidelines recommend fasting lipid levels be evaluated annually for diabetic patients. Overall, 63.6% of the respondents order a lipid profile annually.
- It is recommended by the Basic Practice Guidelines that the macroalbumin test be ordered annually for diabetic patients. Of the healthcare providers surveyed, 63.8% report ordering a macroalbumin test annually for their diabetic patients.
- Of the 417 survey respondents, 67.4% recommend their diabetic patients test their blood sugar 1-3 times a day and 7.2% recommend blood sugar testing 4 or more times per day.
- According to the Basic Practice Guidelines to be diagnosed as having diabetes a person must have a blood glucose level of 126 mg/dl. This blood glucose level is used by 61.4 percent of the healthcare providers to diagnose diabetes.
- Patient compliance was the largest barrier to providing appropriate care with 85.0 percent of respondents indicating that it is a problem

- Of all the survey respondents, 59.7 percent indicated that they had received the Basic Practice Guidelines for Diabetes and 38.6% of respondents indicated that they had received the training tapes.
- 55.2% of respondents indicated that they had read the Basic Practice Guidelines and only 21.1% of respondents indicated that they viewed the training tapes.

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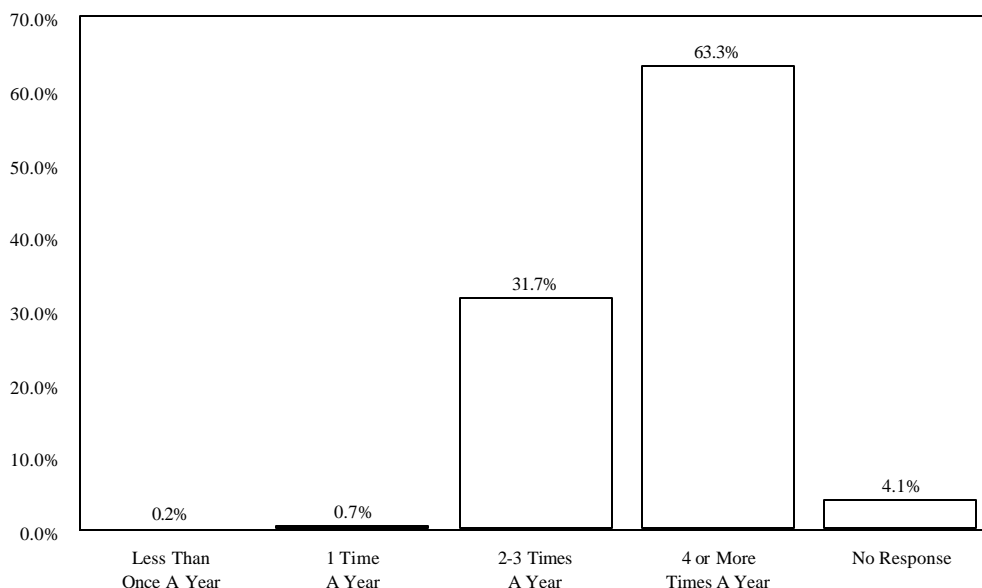
Survey Report

Recommended Visits To A Doctor

The Basic Practice Guidelines suggest that healthcare providers recommend their patients with diabetes schedule and complete four or more routine or follow-up visits a year.

Healthcare providers were asked how often they would recommend their patients with diabetes schedule routine or follow-up visits for their diabetes care. Graph 1 indicates that 63.3 percent of the diabetes healthcare providers report following this guideline. Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 157, or 65.1 percent, report following this guideline. When patients were asked in a similar survey what the frequency was of their visits to a doctor, 46.3 percent of the respondents met the Basic Practice Guideline of visiting a doctor four or more times a year.

Graph 1
Recommended Frequency Of Doctor Visits For Diabetic Care
(n=417)



At 76.0 percent, providers whose practice is located in towns with 5,001 to 9,999 people were more likely to follow this guideline. Three-fourths or 75.0 percent of the healthcare providers in towns with less than 1,000 people also follow this guideline along with 71.6 percent of those in towns with 1,001 to 5,000 people.

Table 1
Recommend Four Or More Visits A Year
For Diabetes Care
By Population Of Practice Location

	Number	Percent
Less Than 1,000	33	75.0
1,001 to 5,000	83	71.6
5,001 to 9,999	19	76.0
10,000 to 24,999	55	57.9
Greater Than 25,000	68	54.4
No Response	6	50.0

Of the healthcare providers whose current principal practice arrangement is a solo private practice 80.0 percent report recommending to their diabetic patients four or more routine or follow-up visits a year. Those providers employed by a government agency had the lowest percent with 51.2% following this guideline.

Table 2
Recommend Four Or More Visits A Year
For Diabetic Care
By Current Principal Practice Arrangement

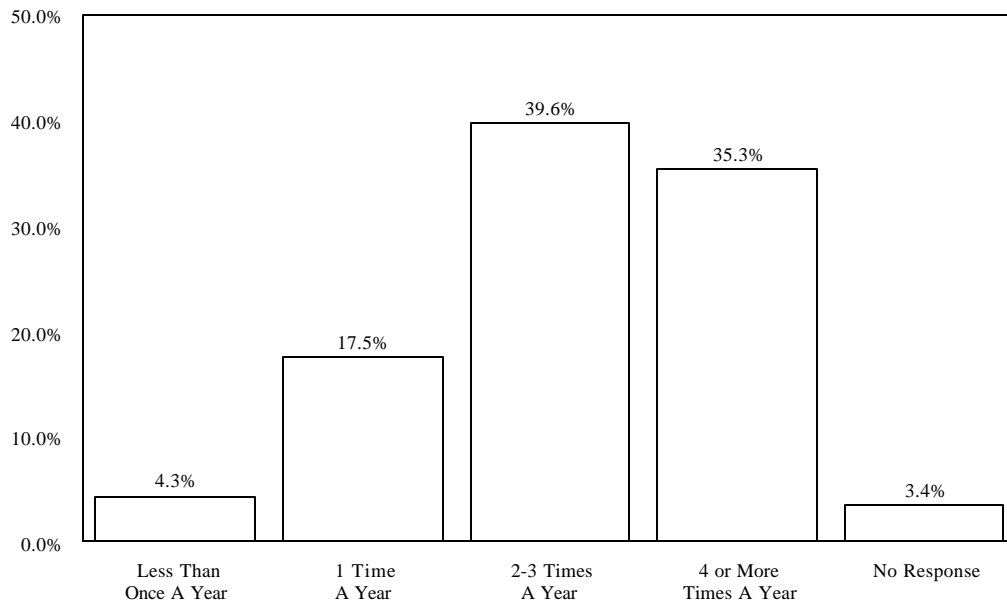
	Number	Percent
Solo Private Practice	20	80.0
Partnership or Group Clinic	149	64.5
Hospital-based Practice	17	54.8
Government Employee	22	51.2
University/Academic Setting	11	68.8
Other	33	62.3
No Response	12	66.7

Foot Examinations

According to the Basic Practice Guidelines, the feet and legs of persons with diabetes are to be examined at each medical visit (4 or more recommended a year). The areas that should be included are the toes, between the toes and the sole and heel of the foot.

Healthcare providers were asked how often they or their trained staff routinely examined the feet of their diabetic patients. Graph 2 indicates that 35.3 percent of the healthcare providers follow this foot care guideline. Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 85, or 35.3 percent, report following this guideline. When diabetic patients were asked in a similar survey the frequency their doctor examines their feet, 20.8 percent responded their feet are examined 4 or more times a year.

Graph 2
Frequency of Foot Examinations (n=417)



Healthcare providers practicing in towns with a population of 1,001 to 5,000 reported following the Basic Practice Guidelines for foot and leg examination the most at 29.3 percent. Healthcare providers practicing in towns with between 5,001 and 9,999 people had the lowest percent at 8.2 percent.

Table 3
Recommend Four Or More
Foot Examinations A Year
By Population Of Practice Location

	Number	Percent
Less Than 1,000	21	14.3
1,001 to 5,000	43	29.3
5,001 to 9,999	12	8.2
10,000 to 24,999	28	19.0
Greater Than 25,000	39	26.5
No Response	4	2.7

Of the healthcare providers whose current principal practice arrangement is a partnership or group clinic, 48.3 percent recommend leg and foot examinations 4 or more times a year. Healthcare providers employed in a university or academic setting recommended leg and foot examinations 4 or more times a year the least often at 5.4 percent.

Table 4
Recommend Four Or More
Foot Examinations A Year
By Current Principal Practice Arrangement

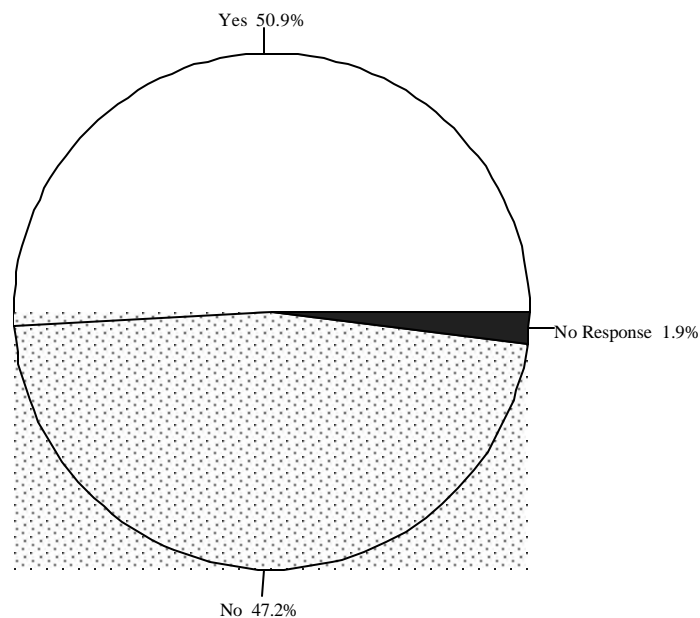
	Number	Percent
Solo Private Practice	11	7.4
Partnership or Group Clinic	71	48.3
Hospital-based Practice	10	6.8
Government Employee	16	10.7
University/Academic Setting	8	5.4
Other	21	14.1
No Response	10	6.7

Familiar With Foot Risk Categorization Assessment

Part of a diabetic patient's foot screen is to include an annual Foot Risk Categorization Assessment. This tool assists in the ranking of risk for diabetics and assesses their risk for recurrent foot ulceration, progressive deformity and ultimately amputation of the foot. The assessment includes risk categories 0 to 3; the higher the risk category the higher the risk of foot problems for the patient.

Slightly more than half of the healthcare providers responded that they are familiar with the diabetes foot risk categorization assessment. Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 143, or 59.3 percent, report being familiar with the diabetes foot risk categorization assessment.

Graph 3
Caregivers Familiar With Foot Risk
Categorization Assessment (n=417)



At 75.0 percent, healthcare providers who did not provide the population of the town where their practice is located had the highest percent of being familiar with the foot risk categorization assessment. Those practicing in towns with 10,000 to 24,999 people had the lowest percent of being familiar with Foot Risk Categorization Assessment at 37.9 percent.

Table 5
Familiar With Foot Risk
Categorization Assessment
By Population Of Practice Location

	Number	Percent
Less Than 1,000	23	52.3
1,001 to 5,000	60	51.7
5,001 to 9,999	16	64.0
10,000 to 24,999	36	37.9
Greater Than 25,000	68	54.4
No Response	9	75.0

Government employed healthcare providers also had the highest percent of being familiar with foot risk categorization assessment at 72.1 percent. Just over 55.0 percent of the healthcare providers in three other types of practice arrangements reported being familiar with the foot risk categorization assessment. They are those reporting their practice arrangements as “Other” at 58.5 percent, those in a university or academic setting at 56.3 percent and solo practice healthcare providers at 56.0 percent.

Table 6
Familiar With Foot Risk
Categorization Assessment
By Current Principal Practice Arrangement

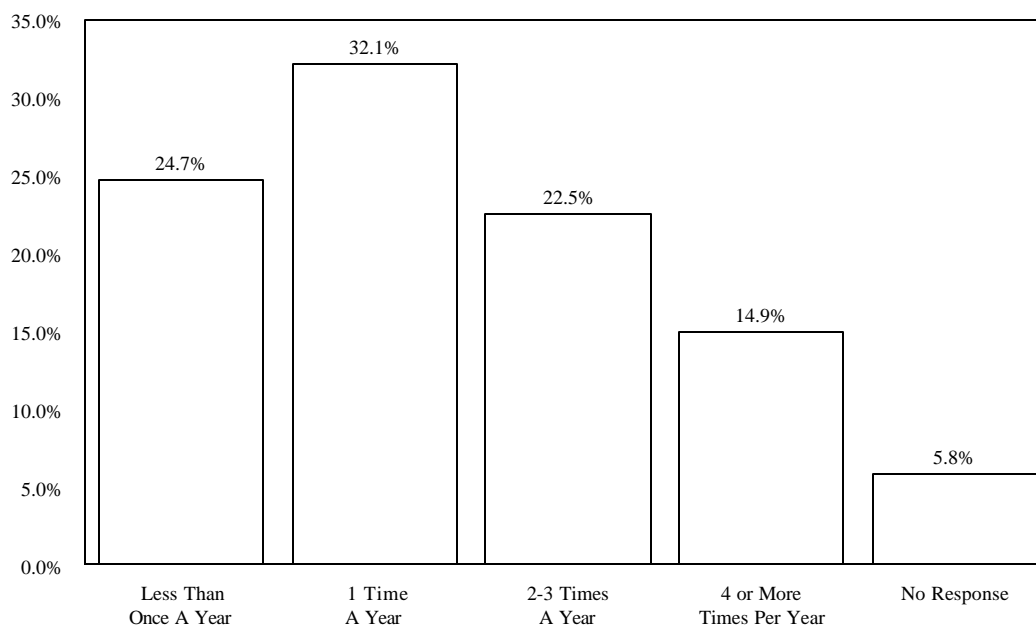
	Number	Percent
Solo Private Practice	14	56.0
Partnership or Group Clinic	105	45.5
Hospital-based Practice	14	45.2
Government Employee	31	72.1
University/Academic Setting	9	56.3
Other	31	58.5
No Response	8	44.4

Recommended Frequency Of Foot Risk Categorization Assessment

According to the Basic Practice Guidelines, foot exams consisting of an assessment and risk categorization should be completed by the healthcare provider either four or more times a year or every visit.

The healthcare providers were also asked how often they or their staff routinely complete foot exams consisting of an assessment and risk categorization for their diabetic patients. Almost fifteen percent of the survey respondents reported completing this exam four or more times a year. The most common response, at 32.1 percent, was one time a year. Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 40, or 16.6 percent, reported that they follow this guideline.

Graph 4
Frequency Of Foot Exams Consisting Of
Assessment And Risk Categorization (n=417)



Healthcare providers whose practice is located in a town with a population greater than 25,000 people responded more often at 30.6 percent that they follow the Basic Practice Guidelines for foot exams consisting of an assessment and risk categorization.

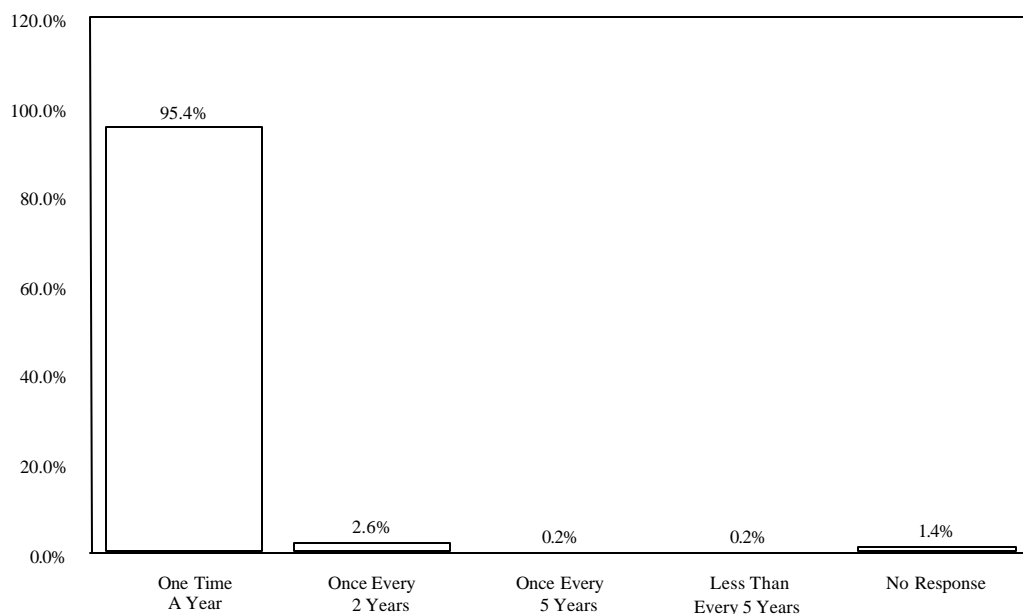
Healthcare providers who reported their type of practice being a partnership or group private practice clinic had the highest response rate with 48.4 percent. Healthcare providers practicing in a hospital setting had the lowest response rate at 4.8 percent.

Recommended Eye Doctor Visits

American Diabetes Association guidelines call for annual retinopathy screening for persons with Type 1 diabetes beginning five years after the onset of diabetes. Persons with Type 2 diabetes are to have an eye exam shortly after the diagnosis of diabetes is made. The eye exam for Type 2 diabetes is to include an annual dilated ophthalmoscopy by an ophthalmologist or experienced optometrist.

Most, or 95.4 percent, of the healthcare providers reported they recommend their patients with diabetes have their eyes checked by an ophthalmologist or therapeutic optometrist one time a year. Of the healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes, 96.3 percent report following this guideline. In a similar survey of persons with diabetes, 56.3 percent of those surveyed reported having their eyes checked at least once a year by an eye doctor.

Graph 5
Frequency Eye Exams Recommended (n=417)



When the data are analyzed by the population of the town where the healthcare provider's practice is located, in each of the population categories more than 94.0 percent of the doctors report recommending their diabetic patients have annual retinopathy screening. For those doctors who did not provide the size of town where their practice is located, 83.3 percent of healthcare providers report following this guideline.

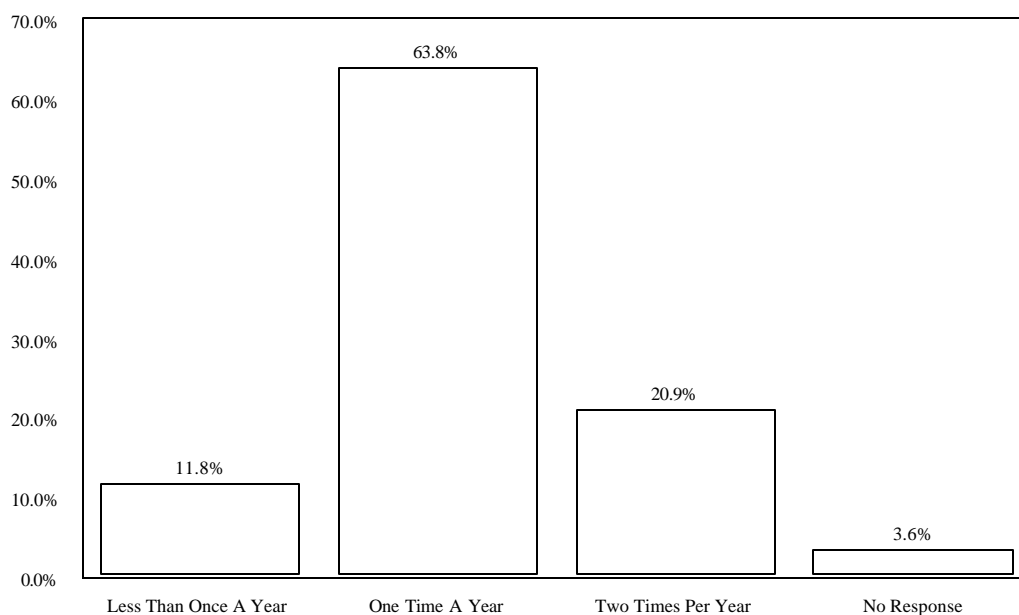
One hundred percent of the healthcare providers practicing in a university or academic setting reported following the guideline. More than 95.0 percent of the healthcare providers in each of the remaining practice arrangements reported following this guideline and 88.9 percent of providers who did not provide their practice arrangement type also follow this guideline.

Recommended Dental Checkups

According to the Basic Practice Guidelines primary healthcare providers are to recommend their diabetic patients see a dentist twice a year for routine dental care.

Graph 6 indicates that 20.9 percent of the healthcare providers reported following the Basic Practice Guidelines for dental checkups. The most common recommendation for dental checkups was one time a year at 63.8 percent. Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 54, or 22.4 percent, report following this guideline. In a similar survey of persons with diabetes 21.6 percent of the respondents reported seeing a dentist two or three times a year.

Graph 6
Frequency Dental Checkups Recommended (n=417)



The data indicate that healthcare providers in towns with a population greater than 25,000 follow the dental checkup guideline the most, at 33.6 percent. One-fourth of the healthcare providers who did not answer the practice location question recommend two dental checkups a year for their diabetic patients. Table 7 indicates that two of the 44 healthcare providers in towns with less than 1,000 people recommend two dental checkups a year.

Table 7
Recommend Two Dental Checkups A Year
By Population Of Practice Location

	Number	Percent
Less Than 1,000	2	4.5
1,001 to 5,000	20	17.2
5,001 to 9,999	3	12.0
10,000 to 24,999	17	17.9
Greater Than 25,000	42	33.6
No Response	3	25.0

Healthcare providers whose current principal practice arrangement is a hospital-based practice reported following this guideline the most at 29.0 percent. The healthcare providers who reported their practice arrangement as ‘Other,’ had the lowest percent at 13.2.

Table 8
Recommend Two Dental Checkups A Year
By Current Principal Practice Arrangement

	Number	Percent
Solo Private Practice	4	16.0
Partnership or Group Clinic	53	22.9
Hospital-based Practice	9	29.0
Government Employee	7	16.3
University/Academic Setting	4	25.0
Other	7	13.2
No Response	3	16.7

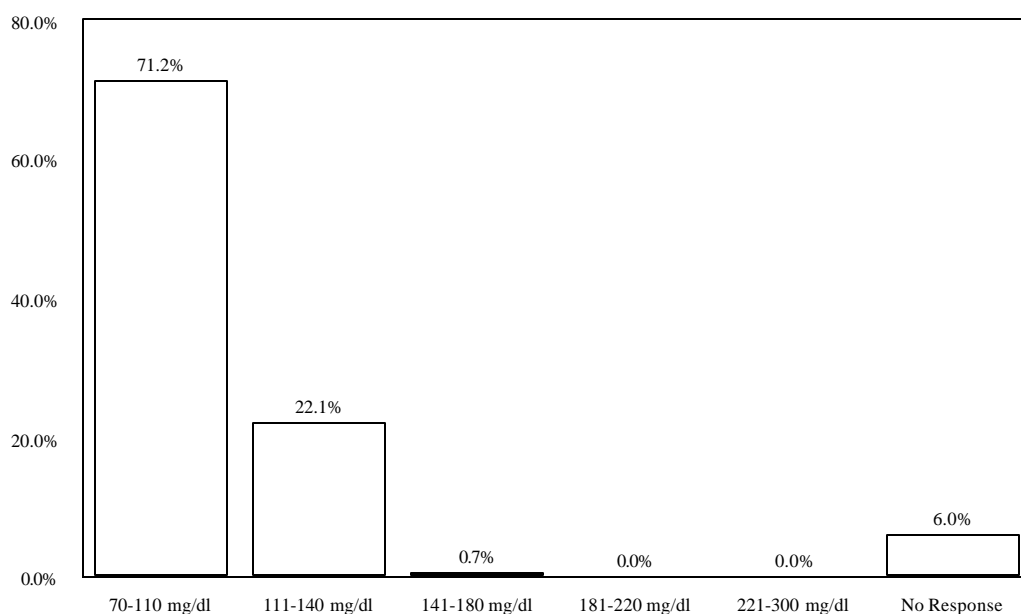
Acceptable Fasting Blood Glucose Level

The fasting glucose level is the most common test performed to diagnose diabetes. After several hours of not eating the amount of glucose is measured from a blood sample drawn at a lab.

Healthcare providers were asked what they consider an acceptable fasting blood glucose level that does not require interventions. Close to three-fourths, or 71.2 percent, of the healthcare providers reported that they consider a fasting blood glucose level of 70-110 mg/dl acceptable. Just over one-fifth, or 22.1 percent, of the healthcare providers reported considering a fasting blood glucose level of 111-140 mg/dl acceptable.

Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 166, or 68.9 percent, consider 70-110 mg/dl an acceptable fasting blood glucose level. An additional 59, or 24.5 percent, of the 241 healthcare providers consider 111-140 mg/dl an acceptable fasting blood glucose level.

Graph 7
Acceptable Fasting Blood Glucose Level (n=417)



Healthcare providers practicing in towns with a population between 5,001 and 9,999 had the highest percent of considering a fasting of blood glucose level of 70 to 110 mg/dl without intervention acceptable. The group with the next highest percentage was healthcare providers whose practice is located in a town with less than 1,000 people at 79.5 percent.

Table 9
Consider 70-110 mg/dl
Acceptable Fasting Blood Glucose Level
By Population Of Practice Location

	Number	Percent
Less Than 1,000	35	79.5
1,001 to 5,000	79	68.1
5,001 to 9,999	20	80.0
10,000 to 24,999	68	71.6
Greater Than 25,000	86	68.8
No Response	9	75.0

When the data are analyzed by current principal practice arrangement the healthcare providers who did not report their type of practice arrangement had the highest percent of considering a fasting blood glucose level of 70 to 110 mg/dl without intervention as acceptable at 83.3 percent. Those practicing in a hospital had the second highest percent at 80.6.

Table 10
Consider 70-110 mg/dl
Acceptable Fasting Blood Glucose Level
By Current Principal Practice Arrangement

	Number	Percent
Solo Private Practice	19	76.0
Partnership or Group Clinic	160	69.3
Hospital-based Practice	25	80.6
Government Employee	31	72.1
University/Academic Setting	7	43.8
Other	40	75.5
No Response	15	83.3

Highest Acceptable Blood Pressure

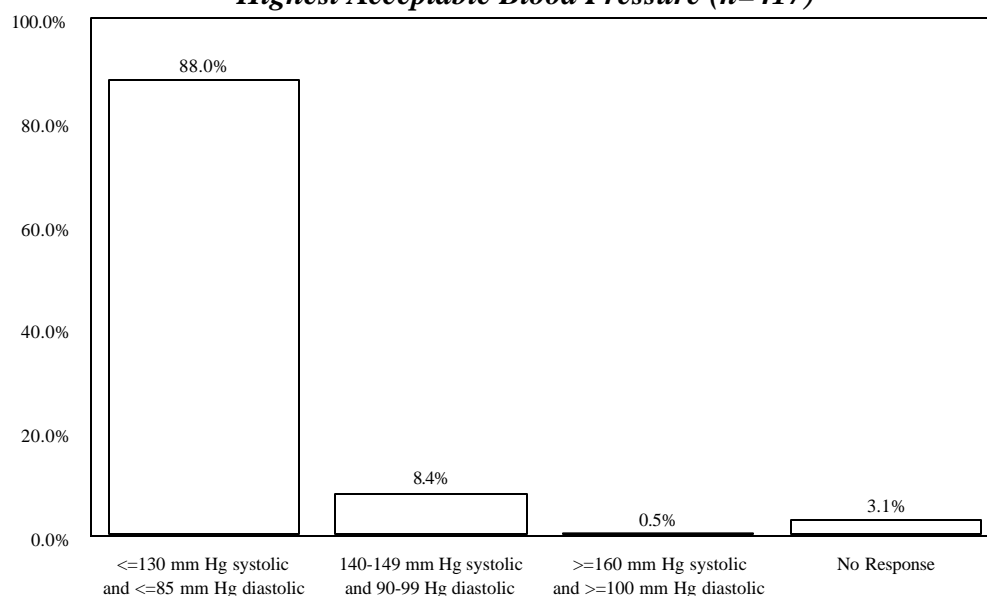
The Basic Practice Guidelines for Diabetes Mellitus report that hypertension is a common problem in individuals who have diabetes and that uncontrolled hypertension is the primary risk factor in accelerating retinopathy and nephropathy, even above the risk factor of glycemic control. The Basic Practice Guidelines also state that hypertension has traditionally been defined as a systolic measurement greater than or equal to 140 mmHg and/or a diastolic measurement of greater than or equal to 90 mmHg.

Most, or 88.0 percent, of the responding healthcare providers reported they consider the highest acceptable blood pressure level that does not require intervention as being a systolic measurement of less than or equal to 130 mmHg and a diastolic measurement less than or equal to 85 mmHg. In a similar survey of persons in South Dakota with diabetes, 48.4 percent reported having high blood pressure.

Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 212, or 88.0 percent, consider the highest acceptable blood pressure level that does not require intervention as being a systolic measurement of less than or equal to 130 mmHg and a diastolic measurement less than or equal to 85 mmHg.

Graph 8

Highest Acceptable Blood Pressure (n=417)



Healthcare providers practicing in a town with a population between 5,001 and 9,999 responded more frequently that they consider the highest acceptable blood pressure level that does not require intervention as being a systolic measurement of less than or equal to 130 mmHg and a diastolic measurement less than or equal to 85 mmHg.

Table 11
Consider Highest Acceptable Blood Pressure
= 130 mm Hg Systolic And = 85 mm Hg Diastolic
By Population Of Practice Location

	Number	Percent
Less Than 1,000	41	93.2
1,001 to 5,000	101	87.1
5,001 to 9,999	24	96.0
10,000 to 24,999	80	84.2
Greater Than 25,000	113	90.4
No Response	8	66.7

All the healthcare providers who are currently in a solo private practice reported that they consider the highest acceptable blood pressure level that does not require intervention as being a systolic measurement of less than or equal to 130 mmHg and a diastolic measurement less than or equal to 85 mmHg. Those who practice in an academic or university setting had the lowest percent for this blood pressure measurement at 81.3 percent.

Table 12
Consider Highest Acceptable Blood Pressure
= 130 mm Hg Systolic And = 85 mm Hg Diastolic
By Current Principal Practice Arrangement

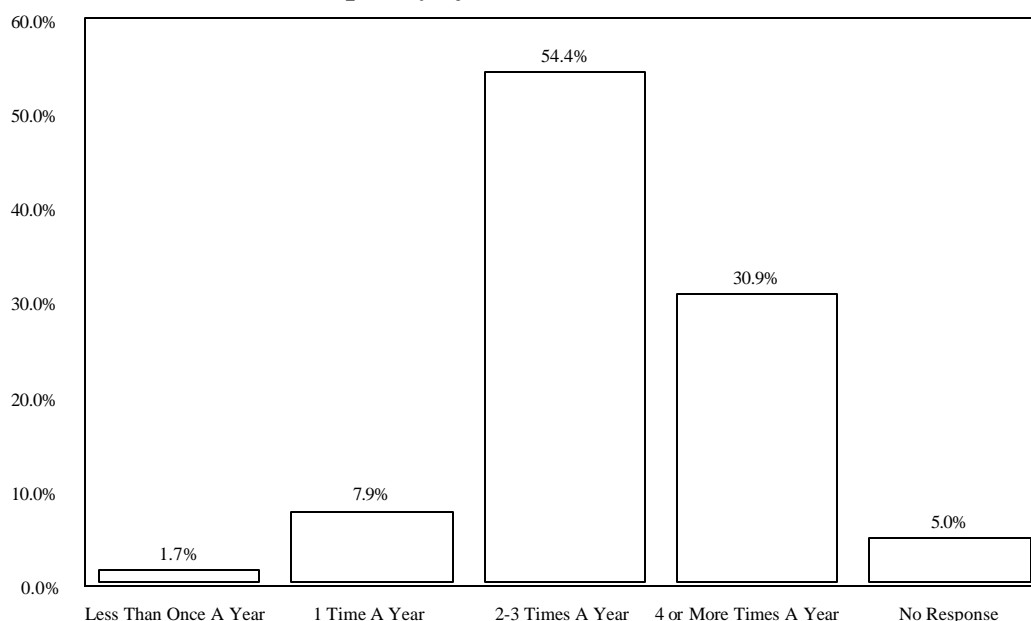
	Number	Percent
Solo Private Practice	25	100.0
Partnership or Group Clinic	199	86.1
Hospital-based Practice	30	96.8
Government Employee	39	90.7
University/Academic Setting	13	81.3
Other	46	86.8
No Response	15	83.3

Frequency Of Ordered Tests

The Basic Practice Guidelines recommend that the Hemoglobin A1c be used for measuring blood glucose control on a quarterly basis. The HgA1c blood test and the self-blood glucose monitoring records are useful tools for determining treatment goals for the diabetic person. Research has proven that quality, long-term glycemic control, which is determined by HgA1c, results in significant decreases in diabetes-related complications.

The survey asked healthcare providers how often they order glycosolated hemoglobin, hemoglobin A1c or HbA1c tests for their patients with diabetes. Graph 9 indicates that 30.9 percent of the healthcare provider survey respondents reported that they order these tests on a quarterly basis. The highest recommendation was for this test to be completed two or three times a year at 54.4 percent. Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 69, or 28.6 percent, report following this guideline. In a similar survey of diabetic persons in South Dakota 52.4 percent of the respondents stated they have had a glycosolated hemoglobin, hemoglobin A1c, or HbA1c test before.

Graph 9
Frequency of Ordered Tests (n=417)



The healthcare providers whose practice is located in a town with 5,001 to 9,999 persons had the highest percent of ordering tests to determine quality of blood sugar control on a quarterly basis at 44.0 percent. This response is followed by healthcare providers who did not provide population information and those practicing in towns with less than 1,000 people at 41.7 percent and 40.9 percent respectively.

Table 13
Tests Ordered Annually
By Population Of Practice Location

	Number	Percent
Less Than 1,000	18	40.9
1,001 to 5,000	35	30.2
5,001 to 9,999	11	44.0
10,000 to 24,999	25	26.3
Greater Than 25,000	35	28.0
No Response	5	41.7

The healthcare providers who did not provide their current principal practice arrangement had the highest percent of ordering tests to determine quality of blood sugar control on a quarterly basis at 44.4 percent. The healthcare providers who identified their current principal practice arrangement as “Other” followed with 35.8 percent. Healthcare providers whose practice arrangement is hospital-based had the lowest percent of following this guideline at 9.7 percent.

Table 14
Tests Ordered Annually
By Current Principal Practice Arrangement

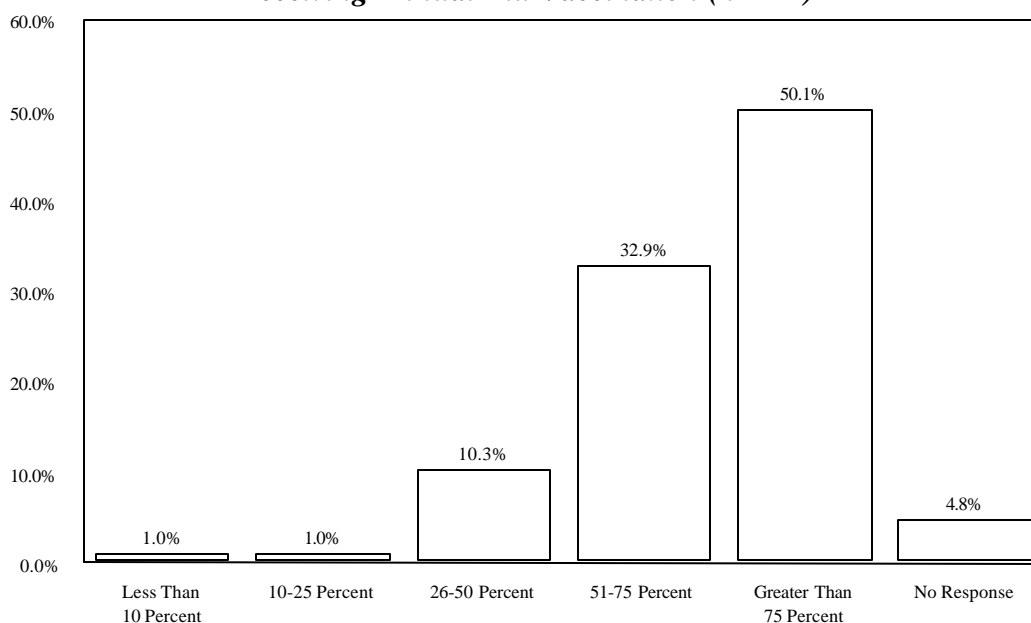
	Number	Percent
Solo Private Practice	8	32.0
Partnership or Group Clinic	77	33.3
Hospital-based Practice	3	9.7
Government Employee	11	25.6
University/Academic Setting	3	18.8
Other	19	35.8
No Response	8	44.4

Patients Receiving Annual Flu Vaccination

According to the Basic Practice Guidelines, annual vaccination against influenza is recommended for individuals at high risk of lower respiratory tract complications and death following influenza infection. This group includes the elderly, persons with chronic disorders of the cardiovascular, pulmonary and/or renal systems; metabolic diseases, severe anemia and /or compromised immune function. Vaccination is also recommended for persons who may transmit influenza to high-risk persons such as medical personnel.

As the following table shows, 50.1 percent of the healthcare providers responded that greater than 75.0 percent of their diabetic patients receive an annual flu vaccination. Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 130, or 53.9 percent, reported that greater than 75.0 percent of the diabetic patients receive an annual flu vaccination. According to the 1999 Behavioral Risk Factor Surveillance System data, 73.8 percent of South Dakota's adult population receives an annual flu vaccination.

Graph 10
Percent Of Diabetic Patients
Receiving Annual Flu Vaccination (n=417)



At 66.7 percent, the healthcare providers who did not provide population information had the highest percent of reporting that greater than 75.0 percent of their diabetic patients receive an annual flu vaccination. The second highest group of healthcare providers, at 53.4 percent, were those whose practice is located in a town with 1,001 to 5,000 people.

Table 15
Greater Than 75 Percent
Of Diabetic Patients Receive Annual Flu Vaccinations
By Population Of Practice Location

	Number	Percent
Less Than 1,000	22	50.0
1,001 to 5,000	62	53.4
5,001 to 9,999	11	44.0
10,000 to 24,999	45	47.4
Greater Than 25,000	61	48.8
No Response	8	66.7

At 72.0 percent, the healthcare providers in a solo practice arrangement reported most often that greater than 75.0 percent of their diabetic patients receive an annual flu vaccination. This is followed by 67.4 percent of healthcare providers who report their current principal practice arrangement as being a government employee.

Table 16
Greater Than 75 Percent
Of Diabetic Patients Receive Annual Flu Vaccinations
By Current Principal Practice Arrangement

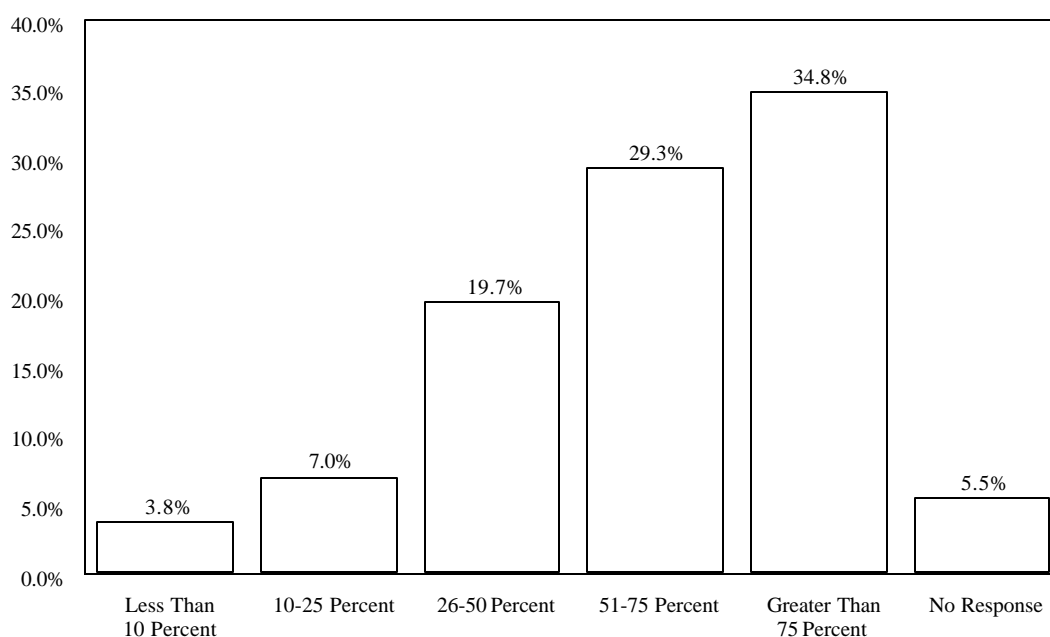
	Number	Percent
Solo Private Practice	18	72.0
Partnership or Group Clinic	103	44.6
Hospital-based Practice	15	48.4
Government Employee	29	67.4
University/Academic Setting	8	50.0
Other	25	47.2
No Response	11	61.1

Patients Receiving Annual Pneumococcal Vaccination

The Basic Practice Guidelines recommend that persons who are 65 years old or older and those with chronic illnesses such as cardiovascular and pulmonary disease, diabetes mellitus, cirrhosis, cerebrospinal fluid leaks, alcoholism and immune compromised adults be vaccinated against pneumococcal disease.

As the following table shows, 34.8 percent of the healthcare providers responded that greater than 75.0 percent of their diabetic patients receive an annual pneumococcal vaccination. Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 89, or 36.9 percent, reported that greater than 75.0 percent of the diabetic patients receive an annual pneumococcal vaccination. According to the 1999 Behavioral Risk Factor Surveillance System data, 18.6 percent of South Dakota's adult population report they have had a pneumococcal vaccination.

Graph 11
Percent Of Diabetic Patients
Receiving Annual Pneumococcal Vaccination (n=417)



At 50.0 percent, the healthcare providers who did not provide population information had the highest percent of reporting that greater than 75.0 percent of their diabetic patients receive an annual pneumococcal vaccination. The second highest group of healthcare providers, at 40.0 percent were those whose practice is located in a town with 5,001 to 9,999 people.

Table 17
Greater Than 75 Percent
Of Diabetic Patients Receive Annual Pneumococcal Vaccinations
By Population Of Practice Location

	Number	Percent
Less Than 1,000	11	25.0
1,001 to 5,000	43	37.1
5,001 to 9,999	10	40.0
10,000 to 24,999	32	33.7
Greater Than 25,000	43	34.4
No Response	6	50.0

At 56.3 percent, the healthcare providers in a university or academic practice arrangement reported most often that greater than 75.0 percent of their diabetic patients receive an annual pneumococcal vaccination. This is followed by 55.8 percent of healthcare providers who report their current principal practice arrangement as being a government employee.

Table 18
Greater Than 75 Percent
Of Diabetic Patients Receive Annual Pneumococcal Vaccinations
By Current Principal Practice Arrangement

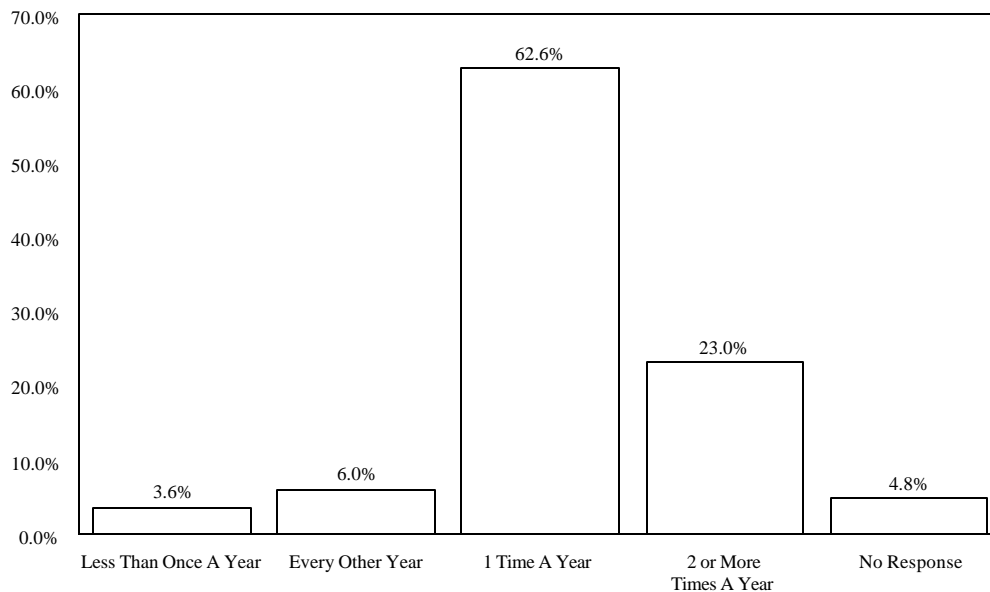
	Number	Percent
Solo Private Practice	10	40.0
Partnership or Group Clinic	70	30.3
Hospital-based Practice	10	32.3
Government Employee	24	55.8
University/Academic Setting	9	56.3
Other	15	28.3
No Response	7	38.9

Ordered Lipid Profile Tests

The Basic Practice Guidelines recommend fasting lipid levels be evaluated annually for diabetic patients. The lipid levels tested should include fasting serum cholesterol, triglycerides, HDL cholesterol and LDL cholesterol.

Overall, 62.6 percent of the healthcare providers reported that they follow the Basic Practice Guideline of annual lipid level tests. Also, at 23.0 percent, close to one-fourth of the healthcare providers order this evaluation more than one time a year. Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 145, or 60.2 percent, reported following this guideline.

Graph 12
Frequency of Lipid Profile Tests (n=417)



Healthcare providers in towns with 5,001 to 9,999 people had the highest percent of ordering an annual lipid profile for their patients with diabetes. At 67.2 percent, the second highest group of healthcare providers who order lipid profiles each year for their diabetic patients were those located in towns with greater than 25,000 people.

Table 19
Order Annual Lipid Profile Tests
By Population Of Practice Location

	Number	Percent
Less Than 1,000	29	65.9
1,001 to 5,000	69	59.5
5,001 to 9,999	17	68.0
10,000 to 24,999	56	58.9
Greater Than 25,000	84	67.2
No Response	6	50.0

The healthcare providers who reported their current principal practice arrangement as a partnership or group private practice clinic had the highest percent of ordering an annual lipid profile for their diabetic patients at 66.2 percent. The healthcare providers practicing in a hospital-based setting followed next with 64.5 percent. Those practicing in a university or academic setting had the lowest percent at 43.8.

Table 20
Order Annual Lipid Profile Tests
By Current Principal Practice Arrangement

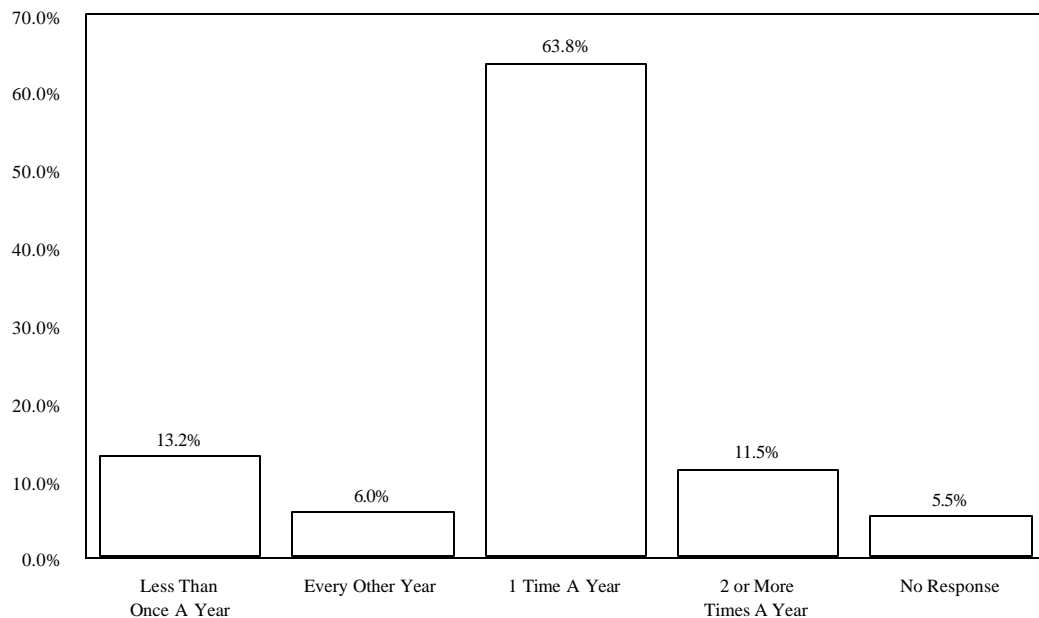
	Number	Percent
Solo Private Practice	13	52.0
Partnership or Group Clinic	153	66.2
Hospital-based Practice	20	64.5
Government Employee	24	55.8
University/Academic Setting	7	43.8
Other	33	62.3
No Response	11	61.1

Ordered Macroalbumin Tests

The macroalbuminuria screening test is a simple clinical setting dipstick test during a urinalysis that detects protein excretion. It is recommended that this test be performed on an annual basis to detect protein excretion only in the macroalbuminuria range which is greater than 150 mg/l.

When asked how often they order a macroalbumin test for their diabetic patients 63.8 percent of the healthcare providers reported following this guideline. Although this test is recommended annually 13.2 percent of the healthcare providers order the macroalbumin screening less than every other year for their diabetic patients. Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 164, or 68.0 percent, reported following this guideline.

Graph 13
Frequency of Macroalbumin Tests (n=417)



The healthcare providers whose practice is located in a town with 5,001 to 9,999 persons had the highest percent of ordering an annual macroalbumin test for their diabetic patients at 84.0 percent. This response is followed with 71.2 percent of the healthcare providers whose practice is located in a town with more than 25,000 people.

Table 21
Order Annual Macroalbumin Test
By Population Of Practice Location

	Number	Percent
Less Than 1,000	26	59.1
1,001 to 5,000	70	60.3
5,001 to 9,999	21	84.0
10,000 to 24,999	54	56.8
Greater Than 25,000	89	71.2
No Response	6	50.0

The healthcare providers whose current principal practice arrangement is government employment had the highest percent of ordering an annual macroalbumin test for their diabetic patients at 74.4 percent. The healthcare providers who identified their current principal practice arrangement as “Other” followed with 69.8 percent.

Table 22
Order Annual Macroalbumin Test
By Current Principal Practice Arrangement

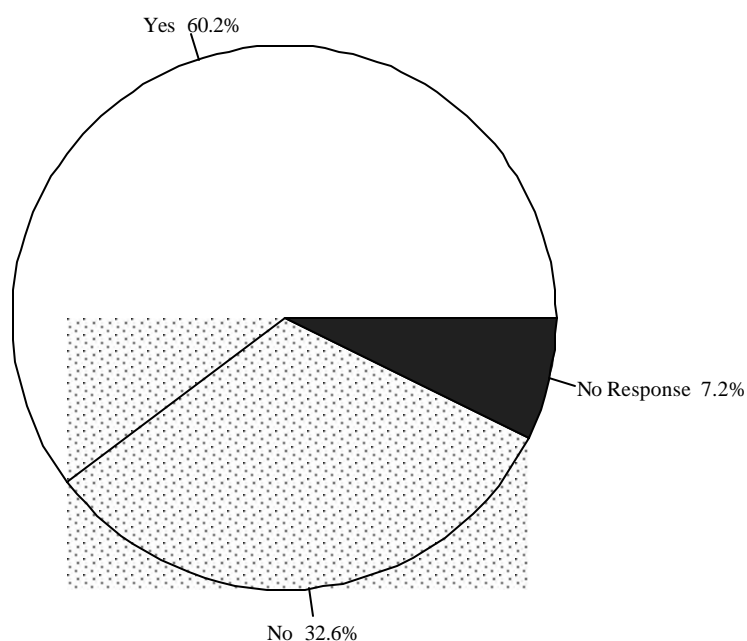
	Number	Percent
Solo Private Practice	9	36.0
Partnership or Group Clinic	151	65.4
Hospital-based Practice	19	61.3
Government Employee	32	74.4
University/Academic Setting	8	50.0
Other	37	69.8
No Response	10	55.6

Negative Macroalbumin

If a macroalbuminuria test is negative it is recommended in the Basic Practice Guidelines that a microalbuminuria test is indicated. This is performed using the same dipstick method as the macroalbuminuria but the test strips are more protein sensitive and can detect protein excretion as low as 20 mg/l. If this test is negative rescreening should occur in one year.

As the following table shows, 60.2 percent of the primary diabetes healthcare providers in South Dakota order a microalbumin test if the macroalbuminuria test is negative. Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 160, or 66.4 percent, reported following this guideline. In a similar survey of people with diabetes, 47.3 percent of the respondents indicated they had had a test for small amounts of protein in their urine and 31.4 percent responded that they were not sure if they had such a test.

Graph 14
Microalbuminuria Test
When Macroalbumin Test Is Negative (n=417)



The data collected during this survey were also analyzed by the population size of town in which the healthcare provider's practice is located and the healthcare provider's current principal practice arrangement. Healthcare providers practicing in towns with a population between 5,001 and 9,999 had the highest percent ordering a microalbumin test if the macroalbumin test is negative for protein at 68.0 percent. The group with the next highest percentage was healthcare providers whose practice is located in a town with 1,001 to 5,000 people at 64.7 percent.

Table 23
Microalbuminuria Test
When Macroalbumin Test Is Negative
By Population Of Practice Location

	Number	Percent
Less Than 1,000	26	59.1
1,001 to 5,000	75	64.7
5,001 to 9,999	17	68.0
10,000 to 24,999	53	55.8
Greater Than 25,000	74	59.2
No Response	6	50.0

When the data are analyzed by current principal practice arrangement the healthcare providers who are government employees had the highest percent of ordering a microalbumin test if the macroalbumin test is negative for protein at 67.4 percent. Those reporting their current principal practice arrangement as Other had the second highest percent at 64.2.

Table 24
Microalbuminuria Test
When Macroalbumin Test Is Negative
By Current Principal Practice Arrangement

	Number	Percent
Solo Private Practice	14	56.0
Partnership or Group Clinic	138	59.7
Hospital-based Practice	19	61.3
Government Employee	29	67.4
University/Academic Setting	9	56.3
Other	34	64.2
No Response	8	44.4

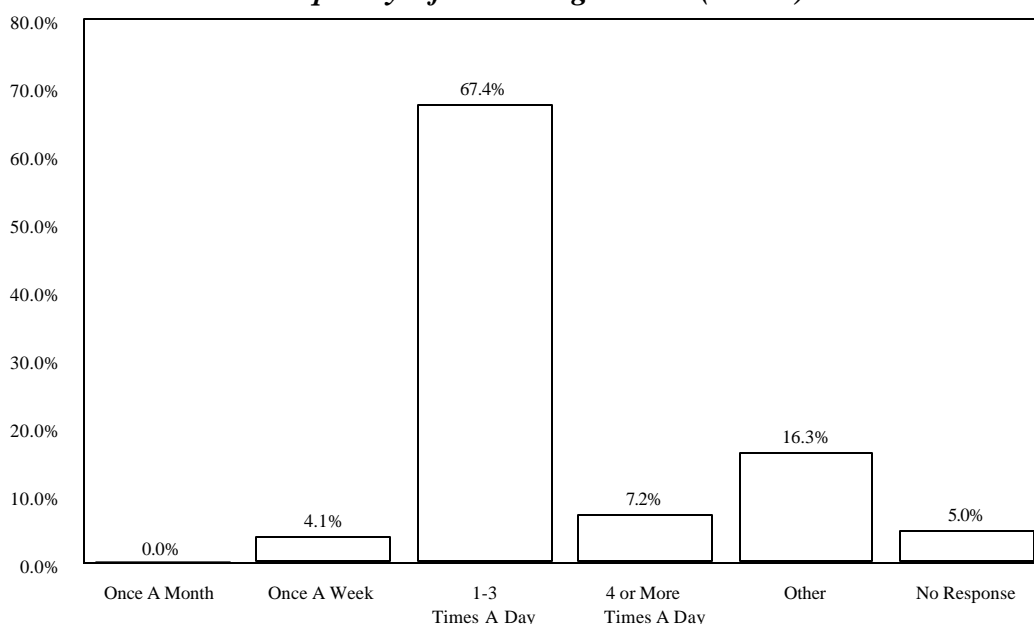
Blood Sugar Test

According to the American Diabetes Association the frequency and timing of glucose monitoring should be dictated by the needs and goals of the individual patient, but for most patients with type 1 diabetes, self-monitoring of blood glucose is recommended three or four times daily.

As the following table shows, 67.4 percent of the healthcare providers recommend self-monitoring of blood glucose one to three times a day. The data also indicate that 16.3 percent of the healthcare providers recommend blood glucose tests on a different schedule than provided for on the survey. Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 175, or 72.6 percent, reported they recommend their diabetic patients test their blood sugar one to three times a day.

In a similar survey of persons with diabetes 49.8 percent of the respondents said that their doctor told them to check their blood sugar 1 to 3 times a days and 15.7 percent were told to check their blood sugar on a different schedule than provided for on the survey.

Graph 15
Frequency Of Blood Sugar Tests (n=417)



The following table and graph provide data based on the size of town in which the healthcare provider's practice is located and the two most common recommendations for frequency of checking blood glucose, 1 to 3 times a day and Other. The healthcare providers who did not provide town population information had the highest percent of recommending blood sugar tests 1 to 3 times a day. Healthcare providers who practice in towns with less than 1,000 people had the highest percent of recommending a different blood sugar testing schedule than what the survey provided for responses.

Table 25
Recommended Frequency Of Blood Sugar Test
By Population Of Practice Location

	1-3 Times A Day		Other	
	Number	Percent	Number	Percent
Less Than 1,000	29	65.9	9	20.5
1,001 to 5,000	81	69.8	19	16.4
5,001 to 9,999	18	72.0	3	12.0
10,000 to 24,999	65	68.4	16	16.8
Greater Than 25,000	78	62.4	21	16.8
No Response	10	83.3	-	-

The healthcare providers who reported their current principal practice arrangement as a hospital-based practice had the highest percent of recommending their patients with diabetes test their blood sugar 1 to 3 times a day at 77.4 percent. Just over one-third of the healthcare providers who are government employees reported recommending blood sugar testing for their diabetic patients on a schedule different from what the survey provided.

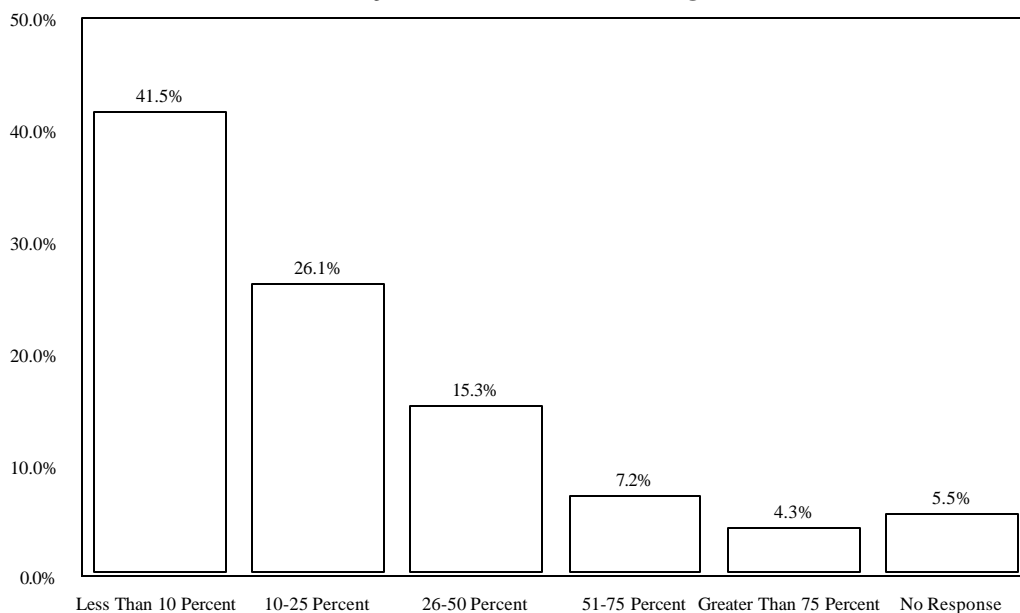
Table 26
Recommended Frequency Of Blood Sugar Test
By Current Principal Practice Arrangement

	1-3 Times A Day		Other	
	Number	Percent	Number	Percent
Solo Private Practice	18	72.0	3	12.0
Partnership or Group Clinic	165	71.4	28	12.1
Hospital-based Practice	24	77.4	5	16.1
Government Employee	21	48.8	15	34.9
University/Academic Setting	10	62.5	1	6.3
Other	33	62.3	13	24.5
No Response	10	55.6	3	16.7

Insulin Level Self-Adjustment

When asked what percent of their patients adjust their own insulin dosage based on the results of self-monitoring of blood glucose, 41.5 percent of the healthcare providers responded that less than 10.0 percent of their patients adjust their insulin dosage. Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 99, or 41.1 percent, reported that less than 10.0 percent of their diabetic patients adjust their own insulin dosage. However, in a similar survey of people in South Dakota with diabetes almost 60 percent (58.5) reported that they adjust their insulin dosage based on blood sugar test results.

Graph 16
Percent Of Diabetic Patients
Who Adjust Their Insulin Dosage (n=417)



Half of the healthcare providers practicing in towns with a population less than 1,000 and half of the healthcare providers who did not provide population information reported less than 10 percent of their diabetic patients adjust their own insulin dosage based on results of self-monitored blood glucose.

Table 27
Less Than 10% Of Patients Adjust Insulin Dosage
By Population Of Practice Location

	Number	Percent
Less Than 1,000	22	50.0
1,001 to 5,000	55	47.4
5,001 to 9,999	12	48.0
10,000 to 24,999	34	35.8
Greater Than 25,000	44	35.2
No Response	6	50.0

Of the healthcare providers who reported their current principal practice arrangement as being hospital-based, 61.3 percent reported that less than 10 percent of their diabetic patients adjust their own insulin dosage based on results of self-monitored blood glucose.

Table 28
Less Than 10% Of Patients Adjust Insulin Dosage
By Current Principal Practice Arrangement

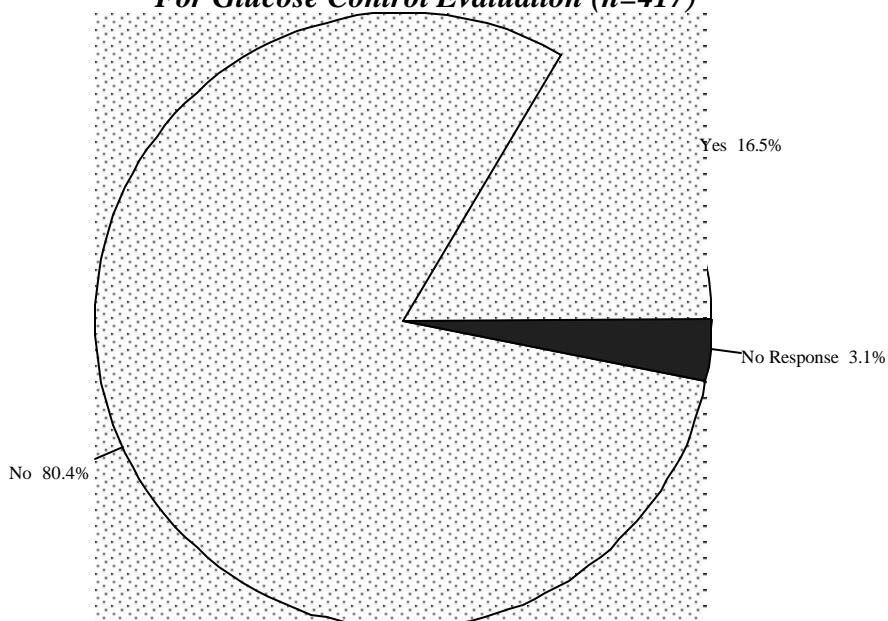
	Number	Percent
Solo Private Practice	13	52.0
Partnership or Group Clinic	82	35.5
Hospital-based Practice	19	61.3
Government Employee	21	48.8
University/Academic Setting	4	25.0
Other	29	54.7
No Response	5	27.8

Fructosamine Or Glycosylated Albumin

According to the core curriculum, glycosylated albumin or fructosamine is a glycated serum protein test that measures glycemic control over 2 to 3 weeks. Normal ranges vary among the different methods of measurement. Fructosamine values are used in short-term follow-up of interventions that have been recently implemented to lower blood glucose.

When asked if they ever use fructosamine or glycosolated albumin to evaluate the glucose control of their diabetic patients, 16.5 percent reported using either of those methods. Eight out of ten or 80.3 percent do not use fructosamine or glycosolated albumin. Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 187, or 77.6 percent, reported that they use fructosamine or glycosolated albumin to evaluate the glucose control of their diabetic patients.

Table 17
Use Fructosamine Or Glycosolated Albumin
For Glucose Control Evaluation (n=417)

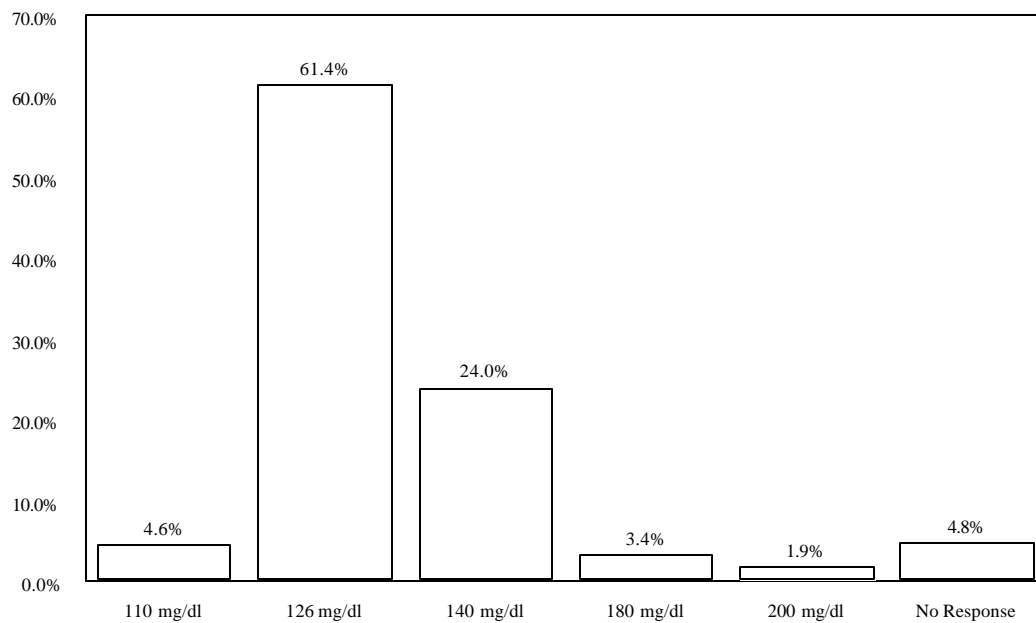


Blood Glucose Level

According to the Basic Practice Guidelines for Diabetes Mellitus for South Dakota, to be diagnosed as having diabetes a person must have a blood glucose level of 126 mg/dl. This blood glucose level is used by 61.4 percent of the healthcare providers to diagnose diabetes. Nearly one out of every four of the survey respondents use 140 mg/dl as the blood glucose level to diagnose diabetes.

Of the 241 healthcare providers who have read the Basic Practice Guidelines or viewed the Basic Practice Guidelines training tapes 152, or 63.1 percent, use a blood glucose level of 126 mg/dl to diagnose diabetes.

Graph 18
Fasting Blood Glucose Level For Diabetes Diagnosis (n=417)



When the responses to the level used to diagnose diabetes question are analyzed by town population size the data indicate that healthcare providers in towns with 5,001 to 9,999 people are more likely to follow the 126 mg/dl fasting blood glucose level for diagnosis guideline.

Table 29
126 mg/dl Fasting Blood Glucose Level
For Diabetes Diagnosis
By Population Of Practice Location

	Number	Percent
Less Than 1,000	25	56.8
1,001 to 5,000	71	61.2
5,001 to 9,999	20	80.0
10,000 to 24,999	58	61.1
Greater Than 25,000	77	61.6
No Response	5	41.7

When the responses to the level used to diagnose diabetes question are analyzed by current principal practice location the data indicate that healthcare providers practicing in a university or academic setting are more likely to follow the 126 mg/dl fasting blood glucose level for diagnosis guideline.

Table 30
126 mg/dl Fasting Blood Glucose Level
For Diabetes Diagnosis
By Current Principal Practice Arrangement

	Number	Percent
Solo Private Practice	13	52.0
Partnership or Group Clinic	136	58.9
Hospital-based Practice	20	64.5
Government Employee	31	71.2
University/Academic Setting	13	81.3
Other	35	66.0
No Response	8	44.4

Barriers To Providing Appropriate Care

Patient compliance is considered by 255 or 85.1 percent of the diabetes healthcare providers as the most common barrier to providing appropriate care to diabetic patients. Reported as the second most common barrier for healthcare providers is the cost to the diabetic patient at 66.4 percent. In a similar survey of persons in South Dakota with diabetes, 44.7 percent reported their main frustration with diabetes care as being the cost of supplies.

Table 31
Barriers To Providing Appropriate Care

	Number	Percent
Patient compliance	355	85.1
Cost to patient	277	66.4
Socioeconomic status of patient	261	62.6
Insufficient time	222	53.2
Cost of supplies	205	49.2
Lack of appropriate support, ancillary personnel	148	35.5
Transportation/access to care	135	32.4
Inadequate reimbursement	118	28.3
Lack of family support	100	24.0
Lack of exercise facilities	99	23.7
Lack of useful patient education materials	86	20.6
Lack of availability of consultive assistance	79	18.9
Trouble navigating the healthcare system	79	18.9
Lack of diabetes information on the community	56	13.4
Lack of employer support	52	12.5
Lack of clear guidance	29	7.0

Patient Referrals

Healthcare providers were asked to what other healthcare professionals they refer their patients with diabetes. Table 32 provides a list of the choices, the number each response was chosen and the calculated percent for each response. It should be noted that the survey respondent could choose more than one answer, therefore the percentages will not add to 100.0.

The two most common responses, at 82.7 percent and 82.5 percent, were referrals to a registered dietitian or licensed nutritionist and referrals to a therapeutic optometrist or ophthalmologist respectively.

Table 32
Referrals To Other Healthcare Professionals

	Number	Percent
Registered Dietitian or Licensed Nutritionist	345	82.7
Therapeutic Optometrist or Ophthalmologist	344	82.5
Diabetes Nurse Educator	327	78.4
Podiatrist	232	55.6
Endocrinologist	205	49.2
Dentist	197	47.2
Cardiologist	158	37.9
Nephrologist	147	35.3
Neurologist	88	21.1
Pharmacist	66	15.8
Urologist	66	15.8
Social Worker, Counselor, Psychologist, Psychiatrist	53	12.7
Ob/Gyn	47	11.3
Exercise Specialist	37	8.9
Orthodontist	19	4.6

Management And Referrals

Healthcare providers were asked whether they routinely provide management within their practice, routinely refer their patients with diabetes for services outside their practice, or if they do both for each of the healthcare topics listed in Table 33.

A little over three-fourths, or 77.0 percent, of the healthcare providers report that they routinely provide management within their practice for smoking cessation. The next two highest areas they provide management for are hypertension at 75.8 percent and dyslipidemia at 75.1 percent.

Referrals outside their practice are most often made for dental problems and eye disease at 87.3 percent and 80.6 percent respectively. According to the survey numbers, healthcare providers combine providing management within their practice and referring their diabetic patients outside their practice for cardiovascular disease (46.0 percent) and dietary management (44.4 percent).

Table 33
***Health Issues Managed Within Practice,
Referred Or Managed And Referred***

	Within Practice		Refer		Both	
	Number	Percent	Number	Percent	Number	Percent
Weight Loss	222	53.2	35	8.4	130	31.2
Psychosocial Problems	109	26.1	116	27.8	155	37.2
Smoking Cessation	321	77.0	20	4.8	50	12.0
Dietary Management	63	15.1	145	34.8	185	44.4
Eye Disease	8	1.9	336	80.6	55	13.2
Foot Disease	80	19.2	150	36.0	163	39.1
Renal Disease	61	14.6	197	47.2	140	33.6
Neuropathic Disorders	89	21.3	184	44.1	117	28.1
Dental Problems	3	0.7	364	87.3	29	7.0
Cardiovascular Disease	62	14.9	141	33.8	192	46.0
Impotence/Erectile Dysfunction	133	31.9	112	26.9	147	35.3
Other Sexual Problems	112	26.9	154	36.9	97	23.3
Insulin Injections	158	37.9	122	29.3	112	26.9
Diabetes and Pregnancy	36	8.6	233	55.9	107	25.7
Exercise Guidance	212	50.8	50	12.0	124	29.7
Treating Hypoglycemia/Glucagon	236	56.6	39	9.4	113	27.1
Sick Day Management	242	58.0	44	10.6	82	19.7
Glucose Monitoring	244	58.5	39	9.4	112	26.9
Dyslipidemia	313	75.1	16	3.8	65	15.6
Hypertension	316	75.8	15	3.6	65	15.6

Materials Received And Read Or Viewed

The following tables provide information about materials the healthcare providers have received. Close to 60.0 percent received The Basic Practice Guidelines for Diabetes Mellitus for South Dakota. The Basic Practice Guidelines for Diabetes Mellitus Training Tapes for South Dakota and Clinical Practice Recommendations from the American Diabetes Association were received by close to the same amount of healthcare providers, 38.6 percent and 38.8 percent respectively.

***Table 34
Materials Received***

	Number	Percent
The Basic Practice Guidelines for Diabetes Mellitus for South Dakota	249	59.7
Clinical Practice Recommendations from the American Diabetes Association	162	38.8
The Basic Practice Guidelines for Diabetes Mellitus Training Tapes for South Dakota	161	38.6
The Diabetes Control and Complications Trial	115	27.6
The United Kingdom Prospective Diabetes Study	68	16.3

***Table 35
Received The Basic Practice Guidelines
For Diabetes Mellitus For South Dakota
By Population Of Practice Location***

	Number	Percent
Less Than 1,000	23	9.2
1,001 to 5,000	73	29.3
5,001 to 9,999	16	6.4
10,000 to 24,999	54	21.7
Greater Than 25,000	76	30.5
No Response	7	2.8

***Table 36
Received The Basic Practice Guidelines
For Diabetes Mellitus Training Tapes For South Dakota
By Population Of Practice Location***

	Number	Percent
Less Than 1,000	13	8.1
1,001 to 5,000	53	32.9
5,001 to 9,999	12	7.5
10,000 to 24,999	35	21.7
Greater Than 25,000	46	28.6
No Response	2	1.2

The healthcare providers who received the educational materials on page 39 were asked if they had read or viewed any of these materials. At 88.8 percent the Basic Practice Guidelines for Diabetes Mellitus for South Dakota was the most common source of materials read or viewed. The next most common source of materials read or viewed was the Clinical Practice Recommendations from the American Diabetes Association at 84.6 percent.

Table 37
Healthcare Providers Who Read Or Viewed
Educational Materials They Received

	Number	Percent
The Basic Practice Guidelines for Diabetes Mellitus for South Dakota	221	88.8
Clinical Practice Recommendations from the American Diabetes Association	137	84.6
The Diabetes Control and Complications Trail	83	51.6
The Basic Practice Guidelines for Diabetes Mellitus Training Tapes for South Dakota	94	81.7
The United Kingdom Prospective Diabetes Study	52	76.5

Table 38
Read The Basic Practice Guidelines
For Diabetes Mellitus For South Dakota
By Population Of Practice Location

	Number	Percent
Less Than 1,000	21	9.5
1,001 to 5,000	67	30.3
5,001 to 9,999	12	5.9
10,000 to 24,999	46	20.8
Greater Than 25,000	70	31.7
No Response	5	2.3

Table 39
Viewed The Basic Practice Guidelines
For Diabetes Mellitus Training Tapes For South Dakota
By Population Of Practice Location

	Number	Percent
Less Than 1,000	8	9.6
1,001 to 5,000	30	36.1
5,001 to 9,999	4	4.8
10,000 to 24,999	17	20.5
Greater Than 25,000	23	27.7
No Response	1	1.2

Practice Guidelines

About one-third or 31.4 percent of the healthcare providers in South Dakota reported they found the Basic Practice Guidelines for Diabetes Mellitus for South Dakota materials somewhat helpful.

One out of every four healthcare providers surveyed reported they had not read or received the publication. As Table 41 shows, 30.0 percent of the healthcare providers who indicate their practices are located in towns with greater than 25,000 people report that they did not read or receive the Basic Practice Guidelines.

Table 40
Usefulness Of Basic Practice Guidelines

	Number	Percent
Very Helpful	89	21.3
Somewhat Helpful	131	31.4
Very Little Help	13	3.1
No Help At All	2	0.5
Did Not Read or Receive	100	24.0
No Response	82	19.7

Table 41
Did Not Read Or Receive
Basic Practice Guidelines For Diabetes Mellitus For South Dakota
By Population Of Practice Location

	Number	Percent
Less Than 1,000	15	15.0
1,001 to 5,000	27	27.0
5,001 to 9,999	7	7.0
10,000 to 24,999	20	20.0
Greater Than 25,000	30	30.0
No Response	1	1.0

Practice Guideline Training Tapes

Half or 50.1 percent of the healthcare providers responded that they had not received the Basic Practice Guidelines for Diabetes Mellitus Training Tapes for South Dakota and nearly one-fourth of the respondents did not answer this question. However, overall, 17.0 percent of the healthcare providers reported that they found the training tapes somewhat helpful.

As Table 43 shows, 32.1 percent of the healthcare providers who indicate their practices are located in towns with greater than 25,000 people report that they did not view or receive the Basic Practice Guidelines.

Table 42
Usefulness Of Basic Practice Guidelines
Training Tapes

	Number	Percent
Very Helpful	35	8.4
Somewhat Helpful	71	17.0
Very Little Help	5	1.2
No Help At All	2	0.5
Did Not View or Receive	209	50.1
No Response	95	22.8

Table 43
Did Not View Or Receive
Basic Practice Guidelines For Diabetes Mellitus
Training Tapes For South Dakota
By Population Of Practice Location

	Number	Percent
Less Than 1,000	26	12.4
1,001 to 5,000	54	25.8
5,001 to 9,999	14	6.7
10,000 to 24,999	46	22.0
Greater Than 25,000	67	32.1
No Response	2	1.0

Diabetes Information Received

When asked where they access diabetes information for their clinical practice, 88.2 percent of the healthcare providers reported obtaining information from professional journals. Slightly more than three-fourths of the respondents obtain information from state and national association meetings. The South Dakota Department of Health was the least accessed source of information for clinical practices. Table 45 provides, by population of practice location categories, the percent of healthcare providers who report they have used the South Dakota Department of Health as a source for diabetes information.

Table 44
Source Of Diabetes Information

	Number	Percent
Professional Journals	368	88.2
Continuing Education State/National Medical Association Meetings	321	77.0
Colleagues	268	64.3
American Diabetes Association	162	38.8
Drug Company Representatives	160	38.4
Diabetes Educator	118	28.3
Internet/On-Line/CD-ROM	87	20.9
South Dakota Department of Health	75	18.0

Table 45
Access South Dakota Department Of Health
For Diabetes Information
By Population Of Practice Location

	Number	Percent
Less Than 1,000	10	13.3
1,001 to 5,000	23	30.7
5,001 to 9,999	6	8.0
10,000 to 24,999	18	24.0
Greater Than 25,000	16	21.3
No Response	2	2.7

Practice Location

Almost one-third, or 30.0 percent, of the healthcare providers reported their practices are located in towns with a population greater than 25,000 people. One-quarter, or 25.0 percent, of the survey respondents practice in towns with 1,001 to 5,000 people.

Table 46
Population Of Town Where Practice Located

	Number	Percent
Less Than 1,000	44	10.6
1,001 to 5,000	16	25.0
5,001 to 9,999	25	6.0
10,000 to 24,999	95	22.8
Greater Than 25,000	125	30.0
No Response	12	2.9

Current Principal Practice Arrangement

More than half of the healthcare providers who responded to the survey are currently in a partnership arrangement. Fifty-three or 12.7 percent of the healthcare providers reported their practice arrangement as being something other than what was provided on the survey list.

Table 47
Current Principal Practice Arrangement

	Number	Percent
Partnership	231	55.4
Government Employee	43	10.3
Hospital-based Practice	31	7.4
Solo Private Practice	25	6.0
University/Academic Setting	16	3.8
Other	53	12.7
No Response	18	4.3

Appendix

**Diabetes Survey
Diabetes Control Program
South Dakota Department of Health**

Please complete the survey below by checking or filling in the appropriate response and returning it to the Department of Health in the envelope provided.

1. In general, how often do you recommend your patients with diabetes schedule routine or follow-up visits for their diabetes care?
 - (1) ____ Less than once a year
 - (2) ____ 1 time per year
 - (3) ____ 2-3 times per year
 - (4) ____ 4 or more times per year

2. How often do you or your trained staff routinely examine the feet of your patients with diabetes?
 - (1) ____ Less than once a year
 - (2) ____ 1 time per year
 - (3) ____ 2-3 times per year
 - (4) ____ 4 or more times per year
 - (5) ____ Every visit

3. Are you familiar with the diabetes foot risk categorization assessment?
 - (1) ____ Yes
 - (2) ____ No

4. How often do you or your staff routinely complete foot exam consisting of an assessment and risk categorization for your patients with diabetes? (checking pedal pulses, neurological exam, and monofilament testing)
 - (1) ____ Less than once a year
 - (2) ____ 1 time per year
 - (3) ____ 2-3 times per year
 - (4) ____ 4 or more times per year
 - (5) ____ Every visit

5. How often do you recommend that your patients with diabetes have their eyes checked by an eye doctor (ophthalmologist or therapeutic optometrist)?
 - (1) ____ 1 time per year
 - (2) ____ Once every two years
 - (3) ____ Once every five years
 - (4) ____ Less frequent than every five years

6. How often do you recommend that your patients with diabetes see a dentist for a check-up?
 - (1) ____ Less than once a year
 - (2) ____ 1 time per year
 - (3) ____ 2 times per year

7. What do you consider an acceptable **fasting** blood glucose level that does not require intervention?
 - (1) ____ 70-110 mg/dl
 - (2) ____ 111-140 mg/dl
 - (3) ____ 141-180 mg/dl
 - (4) ____ 181-220 mg/dl
 - (5) ____ 221-300 mg/dl

8. What do you consider the highest acceptable blood pressure level that does not require intervention?
- (1) ____ < 130 mm Hg systolic and < 85 mm Hg diastolic
 - (2) ____ 140-159 mm Hg systolic and 90-99 Hg diastolic
 - (3) ____ ≥ 160 mm Hg systolic and ≥ 100 mm Hg diastolic
9. In general, how often do you order glycosolated hemoglobin, hemoglobin A1c, or HbA1c tests for patients with diabetes?
- (1) ____ Less than once a year
 - (2) ____ 1 time per year
 - (3) ____ 2-3 times per year
 - (4) ____ 4 or more times per year
10. In general, what percentage of your patients with diabetes receive an annual flu shot?
- (1) ____ Less than 10%
 - (2) ____ 10-25%
 - (3) ____ 26-50%
 - (4) ____ 51-75%
 - (5) ____ Greater than 75%
11. In general, what percentage of your patients with diabetes have received a pneumococcal immunization?
- (1) ____ Less than 10%
 - (2) ____ 10-25%
 - (3) ____ 26-50%
 - (4) ____ 51-75%
 - (5) ____ Greater than 75%
12. In general, how often do you order a lipid profile for your patients with diabetes?
- (1) ____ Less than every other year
 - (2) ____ Every other year
 - (3) ____ 1 time per year
 - (4) ____ 2 or more times per year
13. In general, how often do you order a macroalbumin test for your patients with diabetes?
- (1) ____ Less than every other year
 - (2) ____ Every other year
 - (3) ____ 1 time per year
 - (4) ____ 2 or more times per year
14. In general, do you order a microalbumin test if the macroalbumin test is negative for protein?
- (1) ____ Yes
 - (2) ____ No
15. On average, how often do you recommend that your patients with diabetes test their blood sugar using a blood glucose monitor?
- (1) ____ Once a month
 - (2) ____ Once a week
 - (3) ____ 1-3 times per day
 - (4) ____ 4 or more times per day
 - (5) ____ Other (please specify) _____

16. On average, what percentage of your patients adjust their own insulin dosage based on the results of self-monitoring of blood glucose?
- (1) ☐ Less than 10%
 - (2) ☐ 10-25%
 - (3) ☐ 26-50%
 - (4) ☐ 51-75%
 - (5) ☐ Greater than 75%
17. To which of the following healthcare professionals do you refer your patients with diabetes: (check all that apply)
- (1) ☐ Registered Dietitian/Licensed Nutritionist
 - (2) ☐ Diabetes Nurse Educator
 - (3) ☐ Podiatrist
 - (4) ☐ Therapeutic Optometrist/Ophthalmologist
 - (5) ☐ Nephrologist
 - (6) ☐ Endocrinologist
 - (7) ☐ Pharmacist
 - (8) ☐ Social Worker/Counselor/Psychologist/Psychiatrist
 - (9) ☐ Exercise Specialist
 - (10) ☐ Cardiologist
 - (11) ☐ Urologist
 - (12) ☐ Ob/Gyn
 - (13) ☐ Orthodontist
 - (14) ☐ Dentist
 - (15) ☐ Neurologist
 - (16) ☐ Other (please specify) _____
18. Do you ever use a fructosamine or glycosolated albumin to evaluate the glucose control of your patients with diabetes:
- (1) ☐ Yes
 - (2) ☐ No
19. What blood glucose level (fasting) do you use to **diagnose** diabetes?
- (1) ☐ 110 mg/dl
 - (2) ☐ 126 mg/dl
 - (3) ☐ 140 mg/dl
 - (4) ☐ 180 mg/dl
 - (5) ☐ 200 mg/dl
20. Which of the following are barriers to providing appropriate care to patients with diabetes? (check all that apply)
- (1) ☐ Insufficient time
 - (2) ☐ Lack of appropriate support/ancillary personnel
 - (3) ☐ Inadequate reimbursement
 - (4) ☐ Lack of availability of consultative assistance
 - (5) ☐ Lack of clear guidelines
 - (6) ☐ Lack of useful patient education materials
 - (7) ☐ Patient compliance
 - (8) ☐ Lack of diabetes information in the community
 - (9) ☐ Lack of exercise facilities
 - (10) ☐ Cost of supplies
 - (11) ☐ Cost to patient
 - (12) ☐ Lack of family support
 - (13) ☐ Lack of employer support
 - (14) ☐ Transportation/access to care
 - (15) ☐ Trouble navigating the health care system

- (16) ____ Socioeconomic status of patient
 (17) ____ Other (please specify) _____

21. Indicate by checking whether you routinely provide management within your practice, whether you routinely refer your patients with diabetes for services outside your practice, or if you do both for each of the following:

Topic	Myself	Refer	Topic	Myself	Refer
Weight Loss			Impotence/Erectile Dysfunction		
Psychosocial Problems			Other Sexual Problems		
Smoking Cessation			Insulin Injections		
Dietary Management			Diabetes and Pregnancy		
Eye Disease			Exercise Guidance		
Foot Disease			Treating Hypoglycemia/ Glucagon		
Renal Disease			Sick Day Management		
Neuropathic Disorders			Glucose Monitoring		
Dental Problems			Dyslipidemia		
Cardiovascular Disease			Hypertension		

22. What is the population of the town/city where your practice is located: (Please check one)

- (1) ____ Town with a population less than 1,000
 (2) ____ Town with a population between 1,001 and 5,000
 (3) ____ Town with a population between 5,001 and 9,999
 (4) ____ Town with a population between 10,000-24,999
 (5) ____ Town with a population greater than 25,000

23. Which of the following best describes your current principal practice arrangement (the arrangement in which you spend the most time):

- (1) ____ Solo Private Practice
 (2) ____ Partnership or Group Private Practice Clinic
 (3) ____ Hospital-based Practice
 (4) ____ Government Employee
 (5) ____ University/Academic Setting
 (6) ____ Other (please specify) _____

24. Have you received: (check all that apply)

- (1) ____ The Basic Practice Guidelines for Diabetes Mellitus for South Dakota
 (2) ____ The Basic Practice Guidelines for Diabetes Mellitus Training Tapes for South Dakota (set of 3)
 (3) ____ The Diabetes Control and Complications Trial
 (4) ____ The United Kingdom Prospective Diabetes Study
 (5) ____ Clinical Practice Recommendations from the American Diabetes Association

25. Have you read/viewed: (check all that apply)

- (1) ____ The Basic Practice Guidelines for Diabetes Mellitus for South Dakota
 (2) ____ The Basic Practice Guidelines for Diabetes Mellitus Training Tapes for South Dakota (set of 3)
 (3) ____ The Diabetes Control and Complications Trial
 (4) ____ The United Kingdom Prospective Diabetes Study
 (5) ____ Clinical Practice Recommendations from the American Diabetes Association

26. How helpful did you find the Basic Practice Guidelines for Diabetes Mellitus for South Dakota?

- (1) ____ Very helpful
- (2) ____ Somewhat helpful
- (3) ____ Very little help
- (4) ____ No help at all
- (5) ____ I did not read them or did not receive a copy

27. How helpful did you find the Basic Practice Guidelines for Diabetes Mellitus Training Tapes for South Dakota?

- (1) ____ Very helpful
- (2) ____ Somewhat helpful
- (3) ____ Very little help
- (4) ____ No help at all
- (5) ____ I did not view them or did not receive a copy

28. Where do you access diabetes information for your clinical practice?

- (1) ____ Professional Journals
- (2) ____ Colleagues
- (3) ____ Continuing Education state/national medical association meetings
- (4) ____ American Diabetes Association
- (5) ____ Internet/On-line/CD-ROM
- (6) ____ Diabetes Educator
- (7) ____ Drug Company Representatives
- (8) ____ South Dakota Department of Health
- (9) ____ Other (please specify) _____